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Thematic Content, GSR, Speech Disturbance, and Latency of Response as Related to Self-Reported Conflict Associated with Hostility

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Introduction

In almost any conceptualization of psychopathology, the concept of conflict is ultimately involved. Dollard and Miller (1950) focus on this concept and make conflict central to their formulation of neurotic behavior. Original formulations of approach-avoidance conflict by Miller (1944) were based on animal research. Subsequently, the model was extended to human maladaptive behavior; but then it was used to account for clinical phenomena ex post facto and was not tested experimentally. The present study applies a modification of the Miller model to the experimental investigation of conflict in humans, following proposals by Epstein and Fenz (1961). Conflict over hostility is investigated in relation to a dimension of hostile cues presented in the medium of a test of thematic apperception. The dependent variables consist of content of verbal responses to a stimulus dimension and variations in tension and intellectual functioning.

There follows a review of findings in the literature which are pertinent to the above-mentioned variables.

Effects of Need on Perception

Eriksen (1951), in considering the effects of needs on perceptual recognition thresholds, stated that the principles involved can be applied to tests of thematic apperception. To illustrate his view, he reported a study which he conducted with psychiatric patients in which aggressive and neutral pictures were presented by tachistoscope. He found that where there is sensitization to aggressive stimuli, as indicated by low recognition thresholds, stories to TAT cards are openly aggressive in theme and content. However, with high recognition thresholds (perceptual defense), stories seldom contain aggressive themes; instead, the aggressive need is revealed by such signs as blocking, inaccurate interpretation, and incoherent and unelaborated stories.

In a later paper (1954), Eriksen cautioned against the interpretation of need strength from projective responses, pointing out that the correlations with independent measures of need typically run about 0.40 or 0.50. Two of the limitations he mentioned in the use of projective devices for the determination of need strength are that a stimulus which is ambiguous may have a limited potential for eliciting any particular need response, and that the self-acceptability of the need influences the subject's response, so that responses revealing more important, repressed needs may not be elicited at all. Eriksen posited two basic requirements for an adequate test of whether or not defense mechanisms influence perception: (a) the perceptual stimuli must be shown by independent criteria to be threatening to the individual's self esteem; and (b) the test must provide an adequate measure of individual differences. After stating the above limitations, Eriksen cited the pioneer work of Sanford (1936) and others, and concluded that ".... an overwhelming number of experiments have demonstrated that needs do influence perception" (1945, p. 435).

Among the several categories of "determinants" of TAT stories, Holt (1951) discussed the part played by the arousal of needs and affects. He reported conclusions of a study he conducted in which two hypotheses tended to be upheld: (a) when a need appears to be stronger as determined by a subject's overt behavior than he admits it to be, and when the behavior is relatively unacceptable to him, that need is prominently present in the subject's TAT stories; and (b) when a need is weaker in a subject's behavior than he has judged it to be, and the need is considered relatively desirable, it is also found in unusual strength in the subject's TAT stories. Holt went on to say: "It is necessary to assume, therefore, that any motivational force present in a person may be aroused sufficiently in the course of the test to enter into a story, provided that stronger

restraining forces are not present. Beyond that statement, it does not seem possible to lay down any helpful laws about the kinds of needs that will be expressed most strongly" (1951, p. 191).

The two writers above have presented areas of seeming impasse in the measurement of needs by projective devices; and yet, current research may provide some answers to the apparent discrepancies in the projective expression of need.

Early positive findings on the effects of need on perception in projective devices were reported by Murray (1936) on fear and hostility, and by Sanford (1936, 1937) on food deprivation. Levine, Chein, and Murphy (1942), working with food deprivation, reported an initial increase in food responses with hours of deprivation, but when hours of deprivation exceeded the period of the normal eating cycle, food responses decreased. They hypothesized that a conflict took place between "food" set and "reality" set.

Work by McClelland and Atkinson (1948) and Atkinson and McClelland (1948) on the effect of hunger on perception and projective expression provided a clue as to equivocality of results obtained by various researchers. Results in one study indicated that responses referring to objects instrumental to eating are a better index of need than are responses referring to food. In the other study they found that as hunger increased, there was not an increase in overall imagery or themes of food or eating, so much as there was an increase in food-deprivation themes.

In investigating the effect of experimental arousal of the sex drive on TAT stories, Clark (1952) found that subjects who had been exposed to sexually-arousing stimuli produced less sex or guilt themes than a control group which had not received preliminary arousing stimuli. However, when the same procedure

was carried out with subjects under the influence of alcohol, these results were reversed, and the experimental group produced significantly more sex and guilt than the controls. In his discussion of these results, Clark drew upon Miller's "displacement" paradigm (1948): "These results are interpreted by assuming that under normal conditions the guilt evoked by sexual arousal is sufficient to inhibit the expression of sex with a consequent lowering of guilt. Under alcohol, however, the guilt over sexual arousal is reduced enough to permit the expression of sex with a resulting increase in expressed guilt" (Clark, 1952, p. 398).

Epstein and Smith (1956) also drew on the Miller paradigm of displacement to explain the results of a hunger study in which pictures of different degrees of need-relevance were used. Their hungry and control groups were not differentiated by themes of food-imagery when scores over all cards were compared. However, when cards were separated according to need-relevance, the hungry group produced more hunger responses to pictures of low need-relevance, and less hunger responses to pictures of high need-relevance than the control group. There was no difference on pictures of moderate need-relevance. In accordance with Miller's view on displacement, a gradient of expression was proposed which was assumed to be less steep than a gradient of inhibition. Thus, a drive-produced increment in net response tendency was assumed to increase up to a point with increasing stimulus-relevance, then to decrease, and finally to become negative. The authors stressed the importance of dealing with <u>dimensions</u> of need-relevance in projective stimuli. They concluded that inhibition takes place on the basis of need-relevant cues stemming from three sources: the stimulus, the latent response, and the drive state, itself.

Conflict

A pioneer work in the study of responses accompanying emotional conflict was performed by Luria (1932) in which he measured reactions to stress produced by academic examinations and criminal trial. Voluntary and involuntary movement of the hands as well as reaction time and cognitive disruption were recorded while presenting a word association task which contained words related to the critical event. Increases on all indices were found in conjunction with relevant stimuli.

Wright (1945) was among the first to illustrate the use of a projective technique in the measurement of experimentally-created conflict. Using 40 elementary school children, he presented each with a situation in which the child was required to part with a toy. A significant relationship was revealed in that where the toy-giving situation involved giving away a highly-valued toy, there were more behavioral items that judges rated as reflecting conflict. Also, it was found that stories told about the valued toys were more indicative of conflict than stories about other toys.

In a symposium on projective methods, Auld (1954) stressed the usefulness of certain constructs from behavior theory in the interpretation of projective responses. Included among these constructs was the "conflict" model as set forth by Miller (1944, 1951). More recently, Miller (1959) himself has stated that the extension of conflict theory to displacement has implications for projective tests, providing certain factors are taken into consideration, i.e., cultural taboo of the response, ambiguity of the stimulus, suppression of the tested response, and repression of the response.

The Miller model of conflict was developed on the basis of research results in which albino rats were harnessed and the strength of their approach to food

and avoidance of shock was measured by a calibrated spring (1944). In a later statement having to do with theoretical models, Miller listed the basic assumptions involved in the conflict model, as follows:

"(A) The tendency to approach a goal is stronger the nearer the subject is to it. This will be called the gradient of approach.

(B) The tendency to avoid a feared stimulus is stronger the nearer the subject is to it. This will be called the gradient of avoidance.

(C) The strength of avoidance increases more rapidly with nearness than does that of approach. In other words, the gradient of avoidance is steeper than that of approach.

(D) The strength of tendencies to approach or avoid varies with the strength of the drive upon which they are based. In other words, an increase in drive raises the height of the entire gradient.

(E) When two incompatible responses are in conflict, the stronger one will occur" (Miller, 1951, p. 90).

Miller made the additional statement that gradients may be represented graphically by curves having continuous negative slopes, with the avoidance curve steeper than the approach curve. Straight lines were used for simplicity, without making a claim for linearity.

An attempted rapproachment among the areas of the projective expression of need, conflict, and behavior theory models is illustrated in the work of Epstein and Fenz (1961) on the measurement of approach-avoidance conflict in parachute jumping. Their experimental subjects, who were novice parachutists, were tested with a word association test on the day of a jump and at a time two weeks removed from a jump. All experimental subjects produced GSR gradients as a function of an increasing dimension of stimulus-relevance, and in all cases,

the gradients were higher and steeper on the day of a jump than on a control day. The authors reported unequivocal evidence for perceptual sensitization and defense in that on the day of a jump, parachutists exhibited a general deficit for non-parachute words, a marked deficit for anxiety words, and relative sensitization for parachute words when compared to themselves on a non-jump day or to a non-parachutist control group.

The results supported a modification of the Miller conflict model. One elaboration of the Miller model in the above study involved the derivation of activation gradients measured by GSR and by response deficit. The authors conclude that three types of measures are useful in the measurement of conflict as indicated in responses to a stimulus dimension: (a) a measure of activation based on physiological responses; (b) a formal (non-content) measure of response deficit, such as reaction time; and (c) a content measure of approach and avoidance as evidenced by perceptual sensitization and defense, or by content of verbal association.

TAT Expression of Hostility

Pittluck (1950) found that overt behavioral aggression could not be predicted solely on the basis of strength of aggressive themes on the TAT. However, aggression could be predicted when inhibitory tendencies, as measured by qualifications, denials, and expressions of guilt about aggression, were considered in conjunction with aggressive themes. The more inhibitory tendencies were expressed, the less overt was the behavioral aggression. Mussen and Naylor (1954) found a direct relationship between behavioral hostility and TAT hostility in a lower class group, which they assumed would be less inhibited than a higher socio-economic group. Purcell, (1956) using subjects who had been rated on anti-social tendencies from social history data, found that anti-

social subjects produced more fantasy aggression than controls, and that their responses revealed that they felt it less necessary to obscure or minimize the hostile impulse than did the non-anti-social subjects. Purcell concluded that guilt is more inhibiting than fear of retaliation. Lindzey and Tejessy (1956) found college subjects' ratings of aggressive statements in relation to themselves to be highly correlated with TAT "signs" of aggression. They concluded that TAT "signs" of aggression were much better indicators of conscious aspects of aggression than of covert, or repressed, aspects, and that information could just as well be secured by simply asking the subjects themselves to appraise their own behavior as by laboriously judging projective responses.

Kagan (1956) arranged stories told to a set of specially-devised pictures by a group of 6 to 10-year-old boys into five categories of aggressive content. Teacher ratings of fighting behavior were likewise divided into five categories of overt aggression. It was found that those children most likely to initiate fighting behavior produced significantly more fighting themes than boys rated as extremely non-aggressive.

Saltz and Epstein (1961) investigated the relationship of self-reported hostility and guilt to thematically-expressed hostility and guilt. Groups were divided on a self-report questionnaire according to two levels of guilt and two levels of hostility, and were compared on thematic responses of hostility, guilt, and displaced hostility. An inverse relationship was found between self-reported guilt and strength of thematic hostility. A significant direct relationship was found between self-reported guilt and TAT guilt. A significant relationship was also found between measures of self-reported hostility and conflict over hostility on the one hand, and degree of displaced hostility in response to a picture of high hostility on the other. Along with these findings,

a tendency for an interaction effect of guilt and self-reported hostility on TAT hostility was discovered in that TAT hostility varied directly with drive for low-guilt subjects, and inversely for high-guilt subjects.

A Modification of the Miller Model of Conflict

In emphasizing motivation as a means of explaining and understanding behavior, and in utilizing responses to projective devices as an approach to these goals, the above studies tend to confirm drive and inhibition as basic constructs. In some instances, there appears to be a direct relationship between drive and projective responses and in others, there is either a lack of relation or a negative relationship. Some attempts at delineation of the conditions pertinent to expression and lack of expression have been made, and it seems that a fruitful approach to the investigation of the interaction of drive and inhibition may be found in examining projective hostility responses under conditions of conflict.

Epstein and Fenz (1961) have proposed a modification of the Miller model of conflict to be used with projective techniques which can account for the apparent discrepancies in different studies by providing predictions of responses to thematic stimuli according to different "levels" of measurement. Their assumptions can be represented as follows:

(A) Conflict over hostility can be represented by an approach drive and an avoidance drive for hostile expression. The gradient of avoidance as a function of increasing stimulus relevance is steeper than the gradient of approach (see Fig. 1).

(B) Drives have activating and directing properties which can be separately represented.

(C) The magnitude of drive-produced increment or decrement in approach response can be represented by the algebraic sum of the approach and avoidance

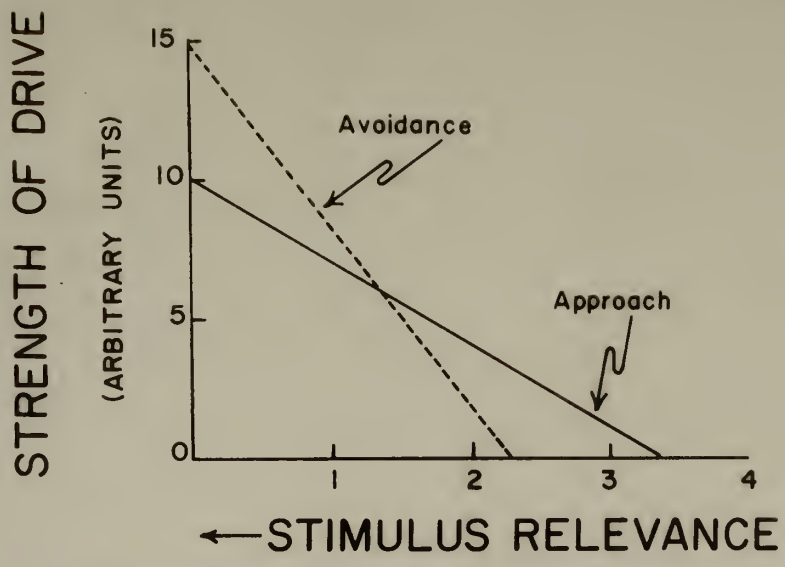


Fig. 1. Strength of approach and avoidance drives as a function of a stimulus dimension.

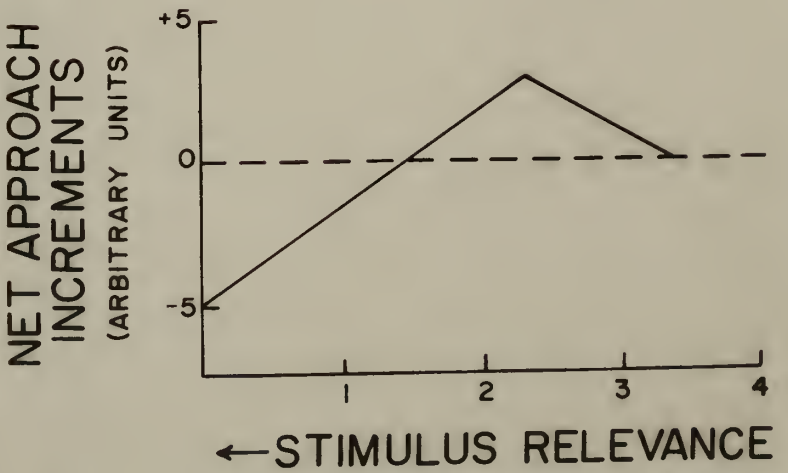


Fig. 2. Net approach increment as a function of a stimulus dimension.

drives where approach is positive and avoidance is negative (see Fig. 2).

(D) Conflict-produced activation can be represented by the sum of the approach and avoidance drives, ignoring algebraic sign (see Fig. 3).

(E) Approach can be measured by goal-relevant responses, and avoidance by the failure to produce such responses when they are normally elicited by the stimulus.

(F) Changes in activation can be measured by the GSR and other measures of autonomic responsivity.

From the preceding and some further assumptions, it follows that with conflict, the following effects occur (Fenz and Epstein, 1961):

(a) A relative increase in goal-relevant responses to stimuli at the remote end of a stimulus dimension and a decrease in goal-relevant responses to stimuli at the high end of the dimension.

(b) A positive gradient of activation as a function of the increasing dimension as measured by the GSR or some other measure of autonomic responsivity.

(c) A positive gradient of cognitive deficit as a function of the increasing dimension, when the conflict is of sufficient magnitude. This is based on the further assumption that beyond a certain point of activation, further increases in activation are associated with increasing deficits in performance.

Some Approaches to the Measurement of Conflict and its Effects

Conflict determined by questionnaire. As reported previously, in a study by Lindzey and Tejessy (1956), it was found that self-ratings of college subjects were highly correlated with TAT signs of aggression. In the investigation of self-reported hostility and guilt, Saltz and Epstein (1961) compiled a

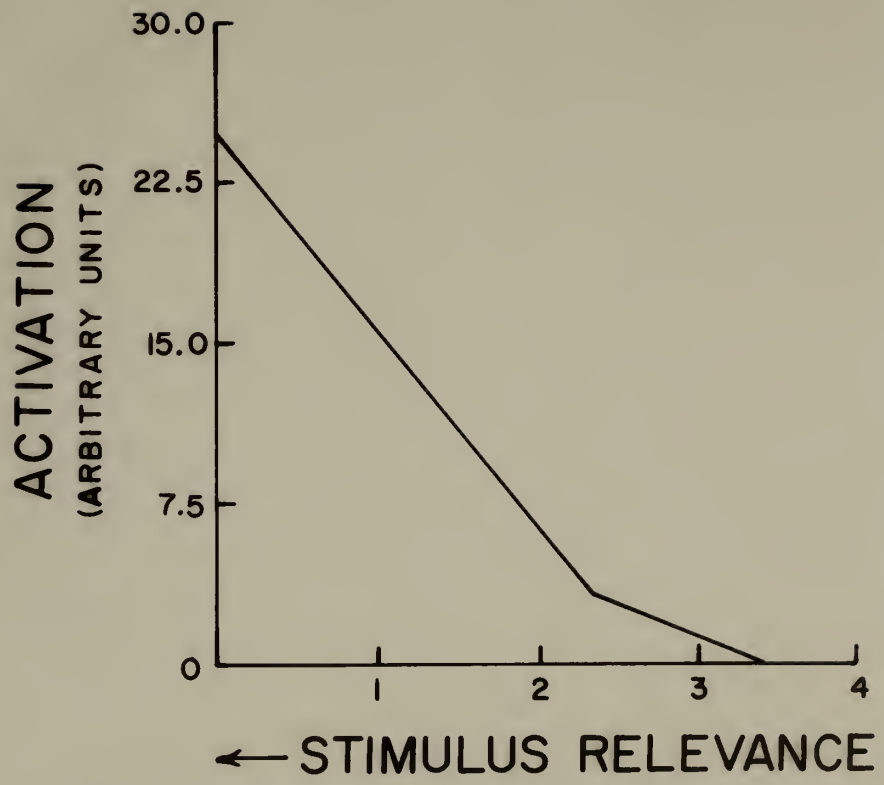


Fig. 3. Activation as a function of a stimulus dimension.

questionnaire which included a subscale on conflict over hostility. In their study, the subjects rated statements of hostility on a four-point scale of how much each applied to the subject. It was found that on a moderately ambiguous picture of relatively high hostility-relevance, self-reported conflict was significantly related to avoidance of hostility. Leiman (1959, 1961), reported a significant inverse relationship between self-reported measures of guilt and conflict associated with sex on the one hand, and projective sexual responses on the other. Subjects of high self-reported conflict exhibited avoidance reactions to a picture of high relevance for sex.

Many arguments for and against the use of self-ratings may be encountered. The stated disadvantages include variations in the subjects' frames of reference and tendencies to conceal information that is unacceptable. On the other hand, self-report data have the advantage that the individual has a greater opportunity to observe himself than does anyone else, and they provide a more direct measure of felt experience than inferences made from other sources. The Saltz-Epstein questionnaire would appear to be a useful technique for the determination of hostility conflict in the present study, since statements dealing with conflict about hostility are included, which involve little interpretation on the subject's part, and the questionnaire includes a "defensiveness" scale which allows for the screening out of overly defensive subjects.

Galvanic skin response. It has been assumed that as conflict increases, "activation" increases, referring to an overall increase in autonomic responsivity (Epstein and Fenz, 1961; Fenz and Epstein, 1961). The GSR has been one of the most widely-used measures of emotion in areas where autonomic responsivity is the focus. Woodworth and Schlosberg consider changes in electrical skin conductance to be one of the better measures of "activation" (energy mobiliza-

tion, tension). They provide an excellent general account of this measure (1954, pp. 137-159).

Epstein and Fenz in a study of novice parachutists (1961) used the GSR as a measure of activation in association with a stimulus dimension related to parachuting. They obtained a high level of predictability using GSR gradients as measures of conflict associated with parachuting.

Speech disturbance. Mahl (1955, 1956, 1959) has been interested in linguistic measures of anxiety in patients during psychotherapeutic interviews. As a result of intensive scrutiny of transcripts of psychotherapy interviews, Mahl was able to devise two "psycholinguistic" measures which appeared to reflect emotional changes within and between patients. These are the "Speech Disturbance Ratio" and the "Silence Quotient". The Speech Disturbance Ratio is the ratio of speech disturbances to the total words spoken by the patient, and the Silence Quotient is made up of N-Seconds-of-Silence divided by N-Seconds Available to-Patient-to-Talk. Speech disturbances are categorized as "Ahs", sentence changes, repetition, stuttering, omissions, incomplete sentences, slips of the tongue, and intruding incoherent sounds. Mahl presents criteria for scoring each of these. Reliability of scoring for these measures is high, ranging from .94 to .96. Panek and Martin (1959) found that "Ahs" and repetitions increased with GSRs during psychotherapy. In a study by Boomer and Goodrich (1961), Mahl's results were not substantiated. These authors found their results to be inconclusive and indicate that further research is required. While results with speech disturbance measures are inconclusive, they appear to hold promise as a measure of cognitive deficit.

Latency. Woodworth and Schlosberg speak of short latency as "... an indication of strong response tendency or of freedom from conflicting tendencies"

(1954, p. 41). On this assumption, the length of time between presentation of stimulus and onset of response in relation to material presumed to be conflict-producing can be expected to vary directly with the amount of conflict provoked.

Epstein and Fenz (1961) found significant differences in reaction time to a dimension of parachute-related words in relation to time removed from the day of a jump, and in the interaction between the two. All subjects took longer to respond to anxiety words. As with the GSR, Epstein and Fenz found that latency of response used in conjunction with a stimulus dimension provided a high level of predictability for degree of conflict.

Conclusions Based on Findings in the Literature

With regard to the effects of need on perception, it has been found that the amount of goal-relevant thematic content derived with projective stimuli does not necessarily vary directly with the assumed strength of drive. Rather, an inverse relationship has been found to hold in some instances, particularly in responses to a dimension of goal-relevant stimuli. In general, the projective expression of hostility has been found to be predictable when inhibitory tendencies are taken into account, such as by selecting subjects who demonstrate a lack of inhibition over the expression of hostility. Extensions of the Miller model of conflict have been utilized to account for the relationship between drive, inhibition, and projective responses. Groups differing in self-reported conflict were found to differ in response to a stimulus dimension in a manner that was generally promising for the theoretical approach. The Epstein and Fenz (1961) modification of the Miller model of conflict involves the consideration of gradients of activation and cognitive deficit, as well as goal-relevant responses. In their study of parachutists, the two former measures were found to be particularly supportive of the theory.

Statement of the Problem

The present study was undertaken to determine the relationship between hostile thematic content, GSR, speech disturbance, and latency, in response to a dimension of hostile stimuli and self-reported conflict associated with hostility. The hypotheses tested were:

1. The gradient of projective expression of hostility to a dimension of hostile stimuli is flatter for subjects with relatively high conflict associated with hostility than for subjects with relatively low confliot associated with hostility. Stating it otherwise, conflict associated with hostility results in a tendency to over-respond with hostility to stimuli of low relevance, and to under-respond with hostility to stimuli of high relevance. The hypothesis follows from the assumption that the gradient of avoidance is steeper than the gradient of approach.

2. Subjects with relatively high conflict associated with hostility produce a steeper GSR gradient to a stimulus dimension of hostility than subjects with relatively low conflict associated with hostility. This follows from the assumption that the approach and avoidance drives can be summed to represent activation (Fenz and Epstein, 1961), and that activation can be measured by the GSR.

3. As stimulus relevance increases, subjects with relatively high conflict associated with hostility increase in speech disturbance relative to subjects with relatively low conflict associated with hostility. This hypothesis is based on the additional assumption that high levels of activation produce speech disturbance.

4. As stimulus relevance increases, subjects with relatively high conflict associated with hostility increase in latency of response relative to subjects with

relatively low conflict associated with hostility. This hypothesis is based on the additional assumption that reaction time is partly a measure of cognitive deficit and partly a measure of avoidance, and that when activation is relatively high, both variables change in the same direction with increasing conflict.

Method

Subjects

In two sessions, 85 male undergraduates at the University of Massachusetts were administered the Saltz-Epstein Questionnaire (see Appendix A-1). From the hostility-conflict scale included within the questionnaire, scores for the entire group ranged from 11 to 27. It was desired to select approximately 30 subjects from the extremes of the distribution. As it turned out, 30 were selected in the high-conflict group and 29 in the low-conflict group, since selecting one more in the latter group would have involved arbitrary selection from an additional interval with a relatively high frequency. The low-conflict group had a range of 11 to 16 on the conflict scale with a mean of 14.3, while the high-conflict group had a range of 20 to 27, with a mean of 21.8.

On the defensiveness scale (see Appendix A-2), scores for both groups ranged from 17 to 37, with a mean of 31.0 for the low-conflict subjects, and a mean of 30.3 for the high-conflict subjects. The lower the score, the higher the defensiveness, and a score of 20 had been established as the cutting point for defensiveness. This eliminated one subject, from the low-conflict group.

The remaining 58 subjects were then contacted by letter and arrangement by return postcard was made for the experimental session at a time convenient for the subject. Of these, 23 in each group returned for the experimental testing. Subsequently, three subjects were "lost" in the recording for the expression of hostility and for speech disturbance, and nine subjects were "lost" for the GSR.

Questionnaire Scales

The hostility-conflict scale was made up of eight items representing conflict or disturbance over hostility. These items are presented in Table 1. Items for the entire questionnaire were originally selected by Saltz and Epstein

Table 1

Items Representing Conflict or Disturbance Associated with Hostility

13.	I wish I could find a way to handle my angry feelings more satisfactorily.
16.	I try not to let things upset me because I have such a terrible temper.
20.	When I express my anger, I am usually sorry afterwards.
27.	I wonder why I act so nice to people I can't stand.
32.	I feel sorry after telling someone off, even though he (she) may have deserved it.
35.	I fail to defend myself when I should, and I get overly aggressive when I shouldn't.
39.	I find it hard to refuse favors even to people I dislike.
49.	Some of the destructive thoughts I have really frighten me.

Note.--Numbers preceding items indicate position of the item in the questionnaire.

(1961) from the MMPI (Hathaway & McKinley, 1951), the Edwards Personal Preference Scale (Edwards, 1959), and additional items were constructed by the authors. Final selection of each scale was based on ratings made by clinical judges.

The weighted scores for each item were: 1--Definitely False; 2--Mostly False; 3--Mostly True; 4--Definitely True. These were then summed for a total score for each subject on each scale.

Thematic Picture Stimuli

These consisted of a specially-devised set of 8"x10" achromatic cards depicting figures in various situations, among which were cards of low, medium, and high hostile stimulus value. The cards and the order of their presentation were as follows (see Appendix B for reproductions of the pictures):

1. Young man sitting on a dock, looking over water.
2. Young man looking at a door.
*3. Young man striding from one room into another.
4. Boy watching another boy flying a kite in a pastoral setting.
*5. Young man with angry expression striding down a street.
6. Two figures in the distance, walking down a path.
*7. Man holding a blood-stained knife is looking down at a semi-kneeling figure in Nazi uniform with a severe stomach wound.

The stimulus value of the cards was pre-ascertained by two methods. First, the cards were ranked by judges consisting of four clinical psychology trainees and three professional psychologists. In six out of seven cases, the cards were ranked in the assumed order. Secondly, use of the cards in previous studies revealed: (a) for the low card, Saltz and Epstein (1961) found 40% of subjects

*Cards 3, 5, and 7 are the low, medium, and high hostility-relevant cards, respectively.

produced a hostility response, and the mean score was 1.12 where 1.00 was considered very weak hostility; (b) Dill (1961) used a similar scoring system to Saltz and Epstein and found 78% and 91% of his subjects produced hostility responses to the medium and high cards, respectively; the mean score for his medium card was 1.89 and for his high card, 2.98.

Galvanic Skin Response

Exosomatic (Feré) type measurements were taken with electrodes attached to palmar and dorsal surfaces of the left hand. Quarter-sized silver electrodes were used, with a paste composed of Bentonite, glycerine, and Ringer's solution, as described in Woodworth and Schlosberg's Experimental Psychology (1954, p. 140). The subject's hand was first swabbed with isopropyl alcohol and a layer of paste applied both to the electrodes and the contact areas of the subject's hand. The electrodes were held in position by halves of a small rubber ball which were taped to the subject's hand.

A Hunter Model 100A GSR amplifier, push-pull type, was used, impressing about three DC volts across the subject. In order to accommodate upper ranges of resistance, the apparatus was modified by placing resistors in parallel with the subject. Recording was accomplished by means of an Edin Ink Writing Galvanometer, Model 8001, run at a chart speed of five millimeters per second. Two pens were operative on the oscillograph; one pen recorded a continuous measure of the subject's resistance; the other provided a signal marker to indicate when the picture was presented, when verbalization was begun, and when the subject indicated he was through with the card.

Procedure

In administering the questionnaire to the original group, the instructions included reassurances that the results would remain confidential, that there

were no right or wrong answers, and that the subject should rate each item not as he thought it should be, but as it really applied to him.

For the experimental testing, all subjects were seen within a three-week interval. Each subject was seen individually for the testing in a room in which a table was situated with chairs on each side for the subject and experimenter. An easel for the placement of the stimulus cards was fixed to the table, facing the subject. Immediately to the subject's left, behind a screen, the GSR apparatus and tape recorder were placed. The microphone for the tape recorder was suspended in full view from the frame of the screen, to about the height of the subject's head. The placement of the furniture and apparatus allowed the experimenter to face the subject and manipulate the apparatus simultaneously.

The subject was seated at the table and told that he would be shown some pictures which would be placed, one by one, on the easel, and that he was to tell a story about each one. With minor variations, the instructions were, "Simply tell the story and it will be recorded through this microphone. Try to feel at ease and tell the story in your own words." It was explained to him that the electrodes which were being placed involved a measure which was completely painless. Then the subject was given standard instructions for the thematic card presentation as recommended by Murray in the Manual for the TAT (1943). In addition to these, the subject was requested to be sure to indicate to the experimenter when he was through with each card. This was done in order to establish time intervals. During the first two cards, if the subject failed to produce a response which met the requirements in the instructions, he was prompted. There was no coaching after the finish of the second card. Intermittent checks were made of the subject's comfort, and the GSR recording was checked by inspection of induced artifacts, induced GSRs, and polarization effects.

Scoring of Dependent Variables

Projective expression of hostility. Stories told to the low, medium, and high cards were transcribed from tape recordings to 5"x8" cards. Sorting (Sort I) of the stories for each card was then performed by two judges (graduate students in clinical psychology). Both judges were fully briefed on the criteria for the sorting. These were primarily the extent of "physical or psychological injury to people other than the hero, and/or anger or intent to injure by the hero". With respect to these criteria, action was to be given stronger consideration than feeling, inappropriate hostility was to be given stronger weight than appropriate hostility, vividness and elaboration of the hostility, along with the centrality of the hostility to the entire story, was to increase the score, and present and future tense were considered to be stronger responses than references to past hostility.

For Sort I, each story was rated relative to other stories on the same card. For the low card, sorting into only three categories was possible because of the narrow range of content of the stories. For the medium and high cards, sorting into five categories was carried out. On Sort I, agreement between judges was .66 for the categories of the low card, .68 for the medium card, and .49 for the high card. The placements of the two judges were then averaged. In order to obtain absolute scores across pictures, further steps were taken. Two representative stories, one on which there was best agreement and one which was judged as most representative of stories in that category, were selected by the experimenter for each score for each picture (see stories in Appendix C). These 26 representative stories were then shuffled and sorted by the two judges (Sort II) on a seven-point scale. Agreement between judges on this sort was .79. Judgments on Sort II were then averaged, and scores for Sort I were replaced by scores from Sort II.

In replacing scores according to Sort II, where relative positions of the categories for a particular card according to Sort I were reversed, the placement according to Sort I was given precedence. The result was a nine-point scale of hostile expression (Scale values for the representative stories are presented in Appendix C).

In addition to the hostility scores, the cards were scored for displacement levels of hostility according to the following criteria:

A. Hero purposefully and in control of his faculties is hostile (e.g., going to beat up somebody who said something derogatory about his girl friend), and is a person with whom direct identification can be assumed (e.g., a college boy, a young man).

B. Hero is not completely responsible for his actions (e.g., fighting as required in the armed forces), or identification is somewhat questionable (e.g., a criminal).

C. Hero is clearly not responsible for his actions (e.g., hypnotized), or hero is clearly a person with whom identification is very unlikely (e.g., idiot or psychotic), or injury to others occurs, but not through hero's intent (e.g., person is fatally injured in auto accident).

Galvanic skin response. The GSRs were scored from .5 second following presentation of the stimulus to the last GSR with onset prior to the removal of the card. This time interval was established in order to include all responses assumed elicited by the presence of the stimulus, and the .5-second lag after stimulus-presentation was used in order to take the latency of the GSR, itself, into account.

Since a set of parallel resistors had been utilized in order to accommodate measurement of subjects whose resistances fell into the upper ranges, and since

the measurement of resistance was not linear in relation to deflections of the pen, a specially devised set of graphs with empirically determined values was utilized for determination of both basal resistance and GSR deflection.

First, the basal resistance was determined. Then, base-to-peak of each GSR was measured. These base-to-peak values were transformed into absolute ohms computed from the basal levels. Each base and peak measure was then converted (by taking its reciprocal) into conductance (micromhos), and the difference between base and peak (conductance change) was the final value assigned to each GSR. Restrictions and conditions included in the measurement technique were that no resistance changes smaller than 100 ohms were included, and in the instance of multiple GSR responses superimposed upon one another, measurement was made from base (onset, point of inflection) to that point at which the direction of the deflection began to reverse itself.

Speech disturbance. A speech disturbance score for the low, medium, and high cards was assigned according to the categories set up and illustrated by Mahl (1959, p. 252), with two additional categories. Table 2 presents definitions and illustrations of these categories. The additional ninth and tenth (Inappropriate Laughter and Inappropriate Pause) were included because experience with this type of testing made it appear to the experimenter that they were reasonable and meaningful additions. Mahl's recommendations for scoring procedure were followed (Mahl, 1955) in that each story was scored by simultaneously listening to the tape and reading the transcript. Re-scoring of 30 of the stories by the author after four months yielded a reliability coefficient of .79.

Latency. Reaction time was measured with the aid of a pen marker included on the oscillograph. Latency included the interval from the point at which the

Table 2

Definitions of the Speech Disturbance Categories

Ah	Scored whenever it occurs; variations are "um", "uh".
Sentence Change	Correction in the form or content of the expression during word sequence; must be sensed as interruptions in the flow of the sentence.
Repetition	Serial, superfluous repetition of one or more words—usually two.
Stutter	
Omission	Parts of words or entire words omitted; contractions are not counted.
Sentence Incompletion	Expression is interrupted, clearly left incomplete, and communication proceeds without correction.
Slips of the Tongue	Includes neologisms, transposition of words from their "correct" sequence, and substitution of an unintended word.
Intruding Incoherent	Incoherent sound intruding without altering the form of the expression, and cannot be clearly conceived as falling into another category.
Inappropriate Laughter	Occurring with no conceivable stimulus within the testing situation.
Inappropriate Pause	Pauses of 15 seconds or more at the onset of response, or in the midst of an expression sequence at a time other than at completion of the sequence.

Note.—All but Inappropriate Laughter and Inappropriate Pause taken from Mahl (1959, p. 252).

card was presented to the point at which the subject began a thematic response. Introductory or postponing verbalizations such as "Well", or "um", were not considered. These time intervals were measured in centimeters and converted to seconds.

Results

Expression of Hostility

The response characteristics of the cards for the subjects of both groups may be found in Table 3. Since two subjects from the high-conflict group and one subject from the low-conflict group were "lost" for content analysis due to broken tapes, another subject was experimentally dropped from the low-conflict group, leaving 21 subjects in each group. Comparing the number of subjects in the low and high conflict groups who produced a hostile response to the low, medium, and high cards, it was found that for the low-conflict subjects, there were 2, 20, and 21 subjects, respectively, and for the high-conflict subjects, 3, 17, and 21 subjects, respectively. While the final scale values for the thematic expression of hostility ranged from one to nine, a score of one actually represented no hostility, and a story with a score of two, while differentiable in the sorting, actually fell short of the criteria for expression of hostility.

The hypothesis of a flatter gradient of hostile expression in response to a dimension of hostile stimuli for subjects with relatively high conflict over hostility than for subjects with relatively low conflict over hostility was not upheld. Mean scores for the low, medium, and high cards in the low-conflict group were 1.81, 4.33, and 7.95, respectively. Means for the low, medium, and high cards in the high-conflict group were 2.00, 3.81, and 8.00, respectively. In order to make distributions ~~for~~ equal for the different stimuli, scores were transformed to McCall's T-Scale (Guilford, 1956, pp. 494, 501), but the relationship between the two groups remained essentially the same. Figure 4 presents the gradients for the two groups as represented by raw scores. Separate analyses were carried out on the low and medium cards, and on the medium and high

Table 3

Response Characteristics of Cards for All Subjects

(N=42)

Thematic Hostility Response	Cards		
	Low	Medium	High
Percent Hostile Response	11.6	88.4	100.0
Mean Hostile Score	1.9	4.1	8.0
Range	1-5	1-6	7-9
Standard Deviation	1.69	2.78	0.36
Mean Using Only Scores Greater Than 2	5.0	4.5	8.0

Note.—Scores of 1 and 2 involve no hostility while a score of 9 is the highest score obtainable.

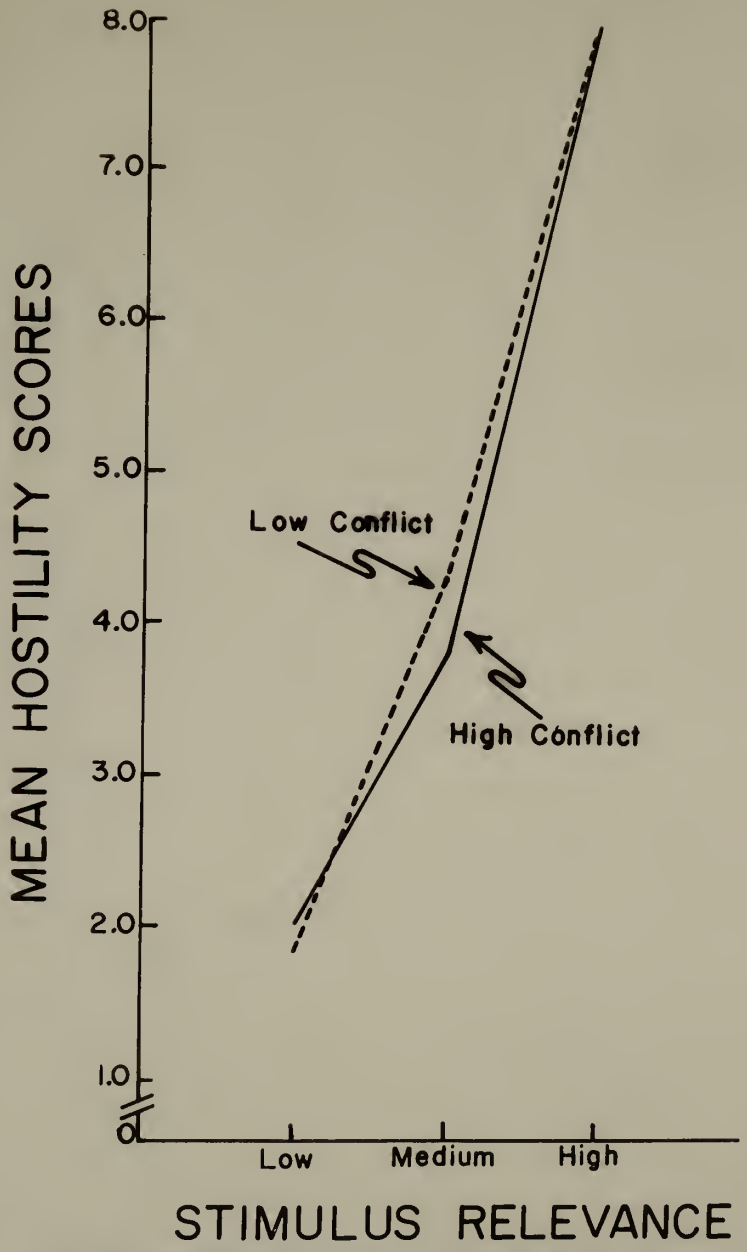


Fig. 4. Projective expression of hostility for pictures of low, medium, and high hostility-relevance as a function of conflict associated with hostility.

cards, on raw scores. These analyses are presented in Tables 4 and 5. In both of the analyses, the only source of significance was between cards. However, there was a slight tendency for the hypothesis to be upheld for the low relative to the medium card. Since these pictures were comparable to each other in most "qualitative" aspects (i.e., number of persons, background) and the high card was not, there appeared to be some basis for suspecting that a significant relationship between groups could be elicited with high stimulus-relevance, providing comparable cards in regard to degree of structuring are used. In addition, the small standard deviation of the hostility scores for the high card (see Table 3) illustrated that it was an extremely poor measure of individual differences.

On the basis of a rationale that direct, undisplaced hostility should receive a higher score than indirect or displaced hostile responses, a weighting for displacement was carried out. Raw scores were multiplied by 5 for level A, by 3 for level B, and by 1 for level C of displacement. The means for the medium and high cards in the low-conflict group were 20.8 and 33.6, and for the high-conflict group, 17.2 and 32.2, respectively. The interaction here also failed to reach significance. The low card was not analyzed with displacement because of the limited hostile expression on that card, and corresponding lack of displacement.

The number of non-displaced responses (level A) relative to displaced hostile and non-hostile responses was compared for the low and high conflict groups. This comparison yielded no differences on the low and high cards but on the medium card, there were 18 A's and 3 "others" for the low-conflict group and 12 A's and 9 "others" in the high-conflict group. This yielded a Chi-square of 4.20, which is significant at the .05 level on one degree of

Table 4

Analysis of Variance of Projective Expression of Hostility as a Function of Conflict and Stimuli of Low and Medium Relevance for Hostility

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F
Total	83	279.00	3.36	
Between Ss	41	105.50	2.57	
Conflict	1	0.59	0.59	0.23
Ss/Conflict[a]	40	104.9	2.62	
Within Ss	42	173.5	4.13	
Cards	1	98.59	98.59	54.47*
Cards x Conflict[b]	1	2.67	2.67	1.48
Ss x Cards/Conflict	40	72.24	1.81	

[a]Error term for Between.
[b]Error term for Within.
*Significant at the .001 level.

Table 5

Analysis of Variance of Projective Expression of Hostility as a Function of Conflict and Stimuli of Medium and High Relevance for Hostility

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F
Total	83	451.95	5.45	
Between Ss	41	61.95	1.51	
Conflict	1	1.19	1.19	0.78
Ss/Conflict[a]	40	60.76	1.52	
Within Ss	42	390.00	9.29	
Cards	1	320.19	320.19	188.35*
Cards x Conflict	1	1.71	1.71	1.01
Ss x Cards/Conflict[b]	40	68.10	1.70	

[a]Error term for Between.
[b]Error term for Within.
*Significant at the .001 level.

freedom. It may be concluded that on an ambiguous picture with a relatively high yield of hostility responses (88%), low-conflict subjects express more direct, undiluted hostility than high-conflict subjects. In conjunction with findings by Saltz and Epstein (1961) and Leiman (1959, 1961), these results support the notion that both lack of response and displacement are indicative of avoidance, and consistent with what would be expected as a result of conflict.

In order to examine extremes according to hostility-conflict scores, subjects obtaining the upper and lower three extreme scores on the scale were separated out. There were eight subjects with scores of 11 to 13, and seven with scores of 23 to 27 (one with 27, one with 25, and 5 with 23). These groups were compared with respect to scores on hostile expression for the low, medium, and high cards. The means obtained were 1.6, 4.3, and 8.0, respectively, for the low-conflict group, and 2.6, 3.6, and 7.9 for the high-conflict group. Again, the groups were almost identical on the high card. However, the differences on the low and medium cards were emphasized in the hypothesized direction.

Galvanic Skin Response

Records of five subjects from the high-conflict group and four from the low-conflict group were lost for the GSR due to a temporary breakdown in equipment. There remained records for 37 subjects; 19 in the low-conflict group and 18 in the high-conflict group. One subject was omitted from the low-conflict group in order to equalize the groups. For all subjects, an average of 6.7 GSRs was obtained per subject per card. Basal resistance (taken at the base-point of the first measured GSR on the low card) for both groups ranged from 20,200 ohms to 188,700 ohms. The mean basal for the low-conflict group was 64,883 ohms, and for the high-conflict group, 67,011 ohms. A t-test of the difference between means was not significant (t=0.14, 34 degrees of freedom), and

an F-test of the variances was also not significant (F=1.21, 18 and 18 degrees of freedom).

Analyses of the GSR scores were made for two phases of the chronological sequence for each card. These sections were: the Perceptual GSR--the largest conductance change of any pre-verbalization GSR within the interval from .5 up to 5.5 seconds after presentation of the card (the Perceptual Interval); and the Response GSR--the largest conductance change of the GSRs following the Perceptual Interval.[1]

Analyses for both the Perceptual and the Response GSRs were conducted over conflict groups for each of these types of response for the low, medium, and high cards. Since many subjects failed to produce a GSR during the Perceptual Interval, the analysis of the Perceptual GSR was carried out including only those cases in which at least one Perceptual GSR to the low, medium, or high card was obtained. This reduced the number of cases to 12 subjects in each group. For the response GSR, analyses were based on scores for 18 subjects in each group.

For the Perceptual GSR, the means for the low, medium, and high cards for the low-conflict group were .39, .34, and .45, respectively; for the high-conflict group, these values were .15, .24, and .42. Curves for these values are presented in Figure 5.

Table 6 presents the analysis of variance of the Perceptual GSR comparing the high and low conflict groups on the low, medium, and high cards. This analysis failed to produce significant results. Since it appeared possible that error variances might be inflated by extension over both groups, separate analyses were then made on the low-conflict and the high-conflict groups (see Tables 7 and 8). This operation also failed to produce significant results.

[1]Another Response GSR made up of total conductance change during the Response interval divided by time was also analyzed, but failed to produce significant results.

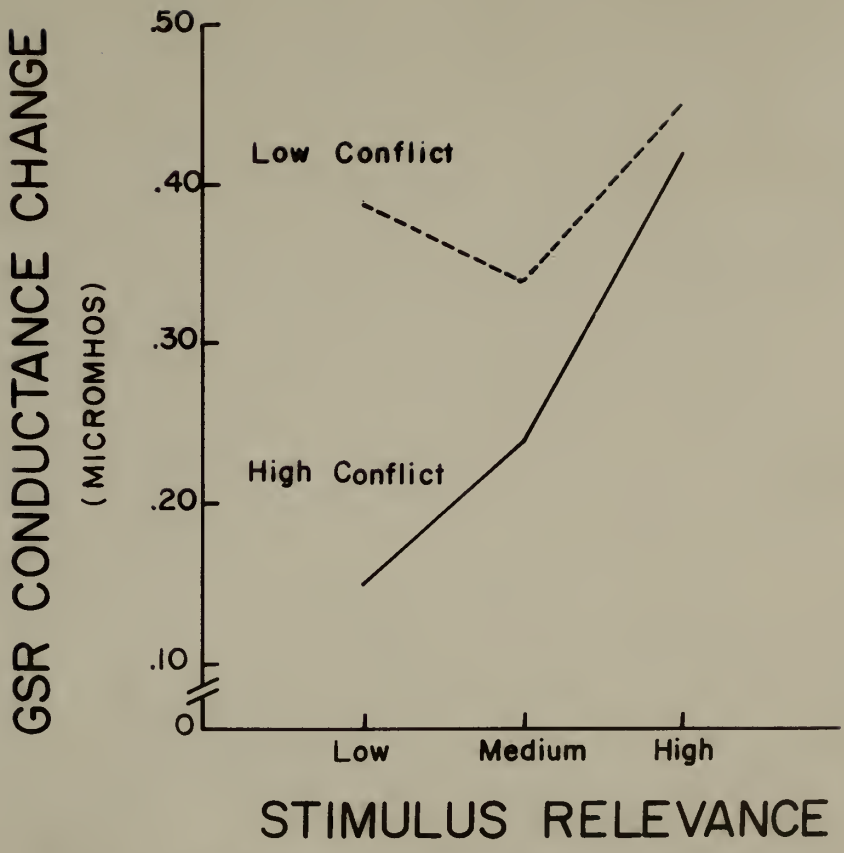


Fig. 5. Mean scores of the Perceptual GSR for pictures of low, medium, and high hostility-relevance as a function of conflict associated with hostility.

Table 6

Analysis of Variance of Perceptual GSR as a Function of Conflict and Stimuli of Low, Medium and High Relevance for Hostility

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F
Total	71	14.32	0.20	
Between Ss	23	6.18	0.27	
Conflict	1	0.26	0.26	0.96
Ss/Conflict[a]	22	5.92	0.27	
Within Ss	48	8.14	0.17	
Cards	2	0.39	0.20	1.05
Cards x Conflict	2	0.38	0.19	1.12
Ss x Cards/Conflict[b]	44	7.37	0.17	

[a]Error term for Between.
[b]Error term for Within.

Table 7

Analysis of Variance of Perceptual GSR as a Function of Low Conflict and Stimuli of Low, Medium, and High Relevance for Hostility

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F
Total	35	7.79	0.22	
Cards	2	0.07	0.04	0.24
Ss	11	3.93	0.36	2.12
Cards x Ss[a]	22	3.79	0.17	

Table 8

Analysis of Variance of Perceptual GSR as a Function of High Conflict and Stimuli of Low, Medium, and High Relevance for Hostility

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F
Total	35	6.27	0.18	
Cards	2	0.46	0.23	0.01
Ss	11	1.99	0.18	1.06
Cards x Ss[a]	22	3.82	0.17	

[a]Error term.

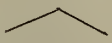
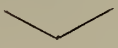
In a study of conflict in parachutists, Epstein and Fenz (1961) found that characteristic GSR gradients were obtained in association with conflict: a positive gradient was elicited from novices, and an inverted v-shaped gradient was elicited from experienced parachutists. Nelson (1961), working with hostility conflict inferred from the content of projective responses, found that the inverted v-shaped GSR gradient was associated with conflict. In view of these results, exploration of different forms of gradients for the Perceptual GSR was carried out in this study. First, positive gradients involving increases in GSR from low to medium, medium to high, and low to high cards were inspected in each group. In the case of a positive gradient from the low to the high card, disregarding the medium card, it was found that there were 9 out of 12 positive gradients for the high-conflict subjects, and only 5 out of 12 for the low-conflict subjects. This comparison was tested by the Chi-square, and yielded a value of 2.74, which falls at the .10 level for one degree of freedom.

In a further analysis, subjects in each group with gradients showing an increase and no decrease from low to medium or from medium to high, and subjects showing an inverted v-shaped curve (representing all conflict patterns), were compared with those showing all other patterns. The patterns and their frequencies are presented in Table 9. Among the 12 subjects in the high-conflict group, 11 conflict gradients were found; among the 12 of the low-conflict group, 5 conflict gradients were found. Using the Fisher "Exact Probabilities" method (Siegel, 1956, pp. 96-104), the results are significant at the .025 level.

As a final step, predictions from the above pooled conflict-gradients were then made to questionnaire conflict scores. There were 16 subjects in

Table 9

Frequency of Different Forms of GSR Gradients for Low and High Conflict Groups

	Form of Gradient[a]	Low Conflict	High Conflict
Conflict Gradients	A 	1	2
	B 	2	4
	C 	1	—
	D 	1	5
		S = 5	S = 11
Non-conflict Gradients	E 	2	—
	F 	3	—
	G 	2	1
		S = 7	S = 1

[a]From low to medium to high card.

the conflict-gradient group (see Table 9). Their questionnaire conflict scores ranged from 11 to 27, with a mean of 18.9 and a variance of 22.1. For the eight non-conflict gradient cases, conflict scores ranged from 13 to 22, with a mean of 16.4 and a variance of 6.6. When the ratio of these variances was tested by the F-test, a value of 3.35 was obtained, which barely falls short of the .05 level of significance for 15 and 7 degrees of freedom. A t-test for distributions with unequal variance was performed (Dixon & Massey, 1951, pp. 104-105), yielding a value of 1.64, which on 22 degrees of freedom, approaches significance ($p=.10$).

It was found that four of the subjects falling into the low-conflict extreme group and three in the high-conflict extreme group produced a Perceptual GSR. The means for the low, medium, and high cards for the Perceptual GSR for the low-conflict extreme group were .14, .45, and .37, respectively, and for the high-conflict extreme group; .14, .28, and .16, respectively. In comparison to the total group, the scores of the extreme groups completely reversed the scores of total low-conflict group on the middle card, and of the high-conflict group, on the high card.

For the Response GSR, means for the low, medium, and high cards for the low-conflict group were 1.11, 1.44, and 1.17; for the high-conflict group, these means were 1.59, 1.61, and 1.42, respectively. Figure 6 presents the curves for these values.

While analysis of Response GSR scores for both groups on all three cards failed to produce significant results (see Table 10), an analysis comparing the groups on the low and medium cards produced a highly significant interaction between cards and conflict (see Table 11). This second analysis was performed on the rationale that the high card could be conceived of as not comparable to the low and the medium cards in qualitative features. Moreover, the medium card

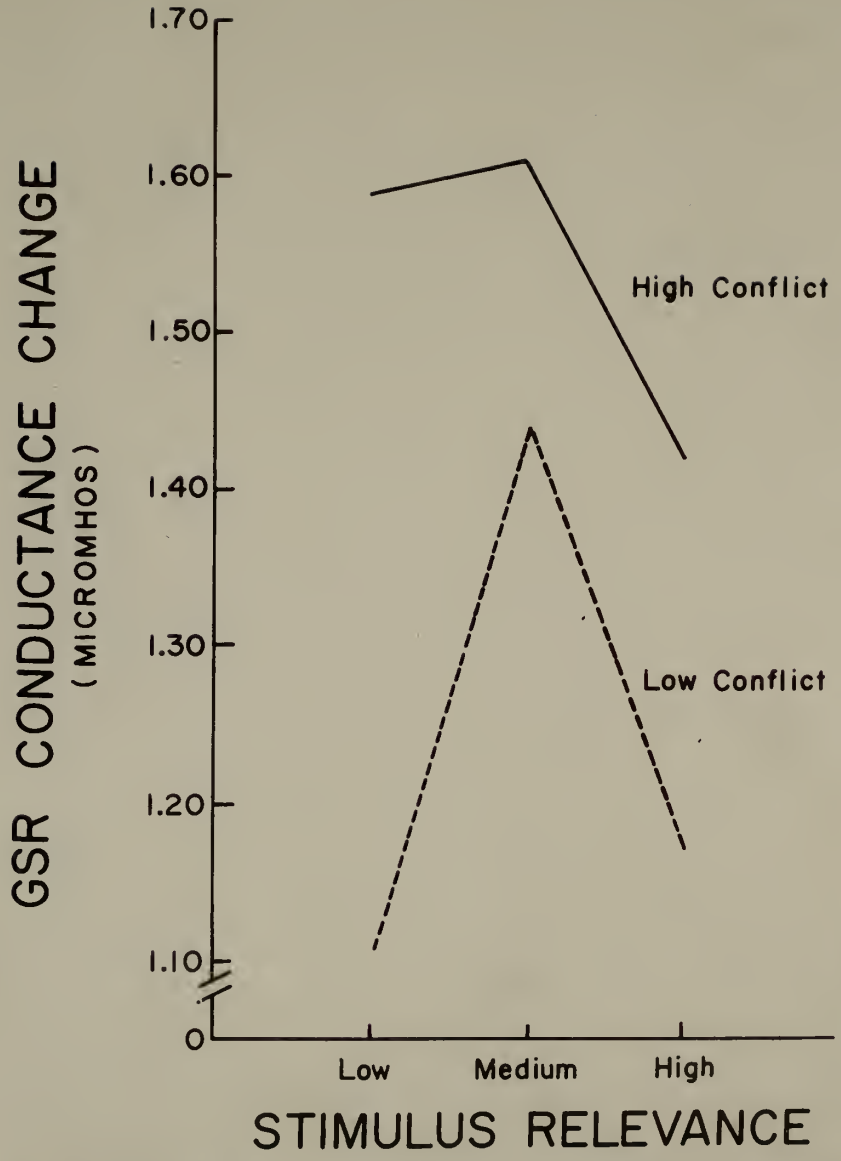


Fig. 6. Mean scores of Response GSR for pictures of low, medium, and high hostility-relevance as a function of conflict associated with hostility.

Table 10

Analysis of Variance of Response GSR as a Function of Conflict and Stimuli of Low, Medium, and High Relevance for Hostility

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F
Total	107	172.21	1.61	
Between Ss	35	142.22	4.06	
Conflict	1	2.39	2.39	0.58
Ss/Conflict[a]	34	139.83	4.11	
Within Ss	72	29.99	0.42	
Cards	2	1.07	0.54	1.29
Cards x Conflict	2	0.49	0.25	0.60
Ss x Cards/Conflict[b]	68	28.43	0.42	

[a]Error term for Between.
[b]Error term for Within.

Table 11

Analysis of Variance of Response GSR as a Function of Conflict and Stimuli of Low and Medium Relevance for Hostility

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F
Total	71	127.87	1.80	
Between Ss	35	115.64	3.30	
Conflict	1	1.87	1.87	0.56
Ss/Conflict[a]	34	113.77	3.35	
Within Ss	36	12.23	0.34	
Cards	1	0.54	0.54	2.08
Cards x Conflict	1	2.87	2.87	11.04*
Ss x Cards/Conflict[b]	34	8.82	0.26	

[a]Error term for Between.
[b]Error term for Within.
*Significant at the .01 level.

actually elicited a high percentage of hostility responses (88%). It may be concluded that after initial "perceptual confrontation" with the stimulus, the relative change in GSRs with increasing stimulus-relevance was greater for low-conflict subjects than for high-conflict subjects.

As may be noted in Figures 5 and 6, the conflict groups reversed positions from the Perceptual to the Response measures. Overall scores for the high conflict group were smaller than the low-conflict group during the Perceptual interval, and were larger during the Response interval. In addition, there was a reversal in the gradient for the stimulus dimension for the low-conflict group from a v-shaped curve during the Perceptual interval to an inverted v during the Response interval. The high-conflict group showed an increase from low to medium cards for both intervals, but while there was an increase from medium to high cards during the Perceptual interval, there was a decrease during the Response interval. These values were analyzed in one overall analysis of variance of scores for low, medium, and high cards for Perceptual and Response GSRs for low and high-conflict groups (see Table 12), and failed to produce significant results. Since a significant interaction was found for cards and conflict in the analysis of Response GSR for low and medium cards it was surprising that a significant interaction among conflict, cards, and GSRs was not obtained. However, in view of the fact that the two measures were very different in magnitude, it is probable that the error term was inflated.

In regard to extreme groups for Response GSR, the means for the low-conflict extreme (seven subjects) were 1.25, 1.09, and 1.43 for the low, medium, and high cards; for the high-conflict extreme (six subjects), the Response GSR means were 1.07, 1.15, and 1.00. With this variable, as with the Perceptual GSR, the low-conflict group reversed on the middle card for the extreme group as compared with

Table 12

Analysis of Variance of Perceptual and Response GSR as a Function of Conflict and Stimuli of Low, Medium, and High Relevance for Hostility

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F
Total	143	210.88	1.47	
Between Ss	23	48.99	2.13	
Conflict (C)	1	1.53	1.53	0.71
Ss/Conflict[a]	22	47.46	2.16	
Within Ss	120	161.89	1.35	
Dimensions (D)	2	0.29	0.15	0.32
Responses (R)	1	67.00	67.00	31.02*
D x R	2	1.10	0.55	0.05
C x D	2	0.10	0.05	0.11
C x R	1	3.88	3.88	1.80
C x D x R	2	5.67	2.84	0.26
Ss x D/Conflict[b]	44	20.61	0.47	
Ss x R/Conflict[c]	22	47.53	2.16	
Ss x D x R/Conflict[d]	44	485.90	11.04	

Note.--C: High and low conflict groups.
D: Low, medium, high cards.
R: Perceptual and Response GSR.

[a]Error term for C.
[b]Error term for D and C x D.
[c]Error term for R and C x R.
[d]Error term for D x R and C x D x R.
*Significant at the .001 level.

the total group. The high-conflict group had much lower scores in the extreme group than in the total group, but their direction was almost parallel.

Speech Disturbance

The hypothesis that subjects with relatively high conflict over hostility increase in speech disturbance relative to subjects with relatively low conflict over hostility as stimulus relevance increases was not upheld. As with the expression of hostility, two subjects from the high-conflict group and one subject from the low-conflict group were "lost", and the number in each group was equated by dropping the same subject in the low-conflict group as was dropped for the expression of hostility. Scores for each subject on each card were compiled over time of response. The means for each card in the low-conflict group were: low--.251, medium--.247, and high--.303. For the high-conflict group, these means were .299, .283, and .314, respectively. Graphic representation of the means is presented in Figure 7 and analysis of variance, in Table 13.

For extreme groups on speech disturbance, the low-conflict group means were .214, .255, and .310 for the low, medium, and high cards, respectively. For the high-conflict extremes, these means were .340, .282, and .330.

Latency

The hypothesis that as stimulus relevance increases, subjects with relatively high conflict over hostility increase in latency of response relative to subjects with relatively low conflict over hostility was not supported (see Table 14). Times were obtained for all 22 subjects in six other groups. The means for the low, medium, and high cards for the low-conflict group were 11.8, 12.8, and 13.2, respectively. For the high-conflict group, these means were 7.4, 9.6, and 9.0 seconds. Curves of these means are presented in Figure 8, with the analysis of variance in Table 14.

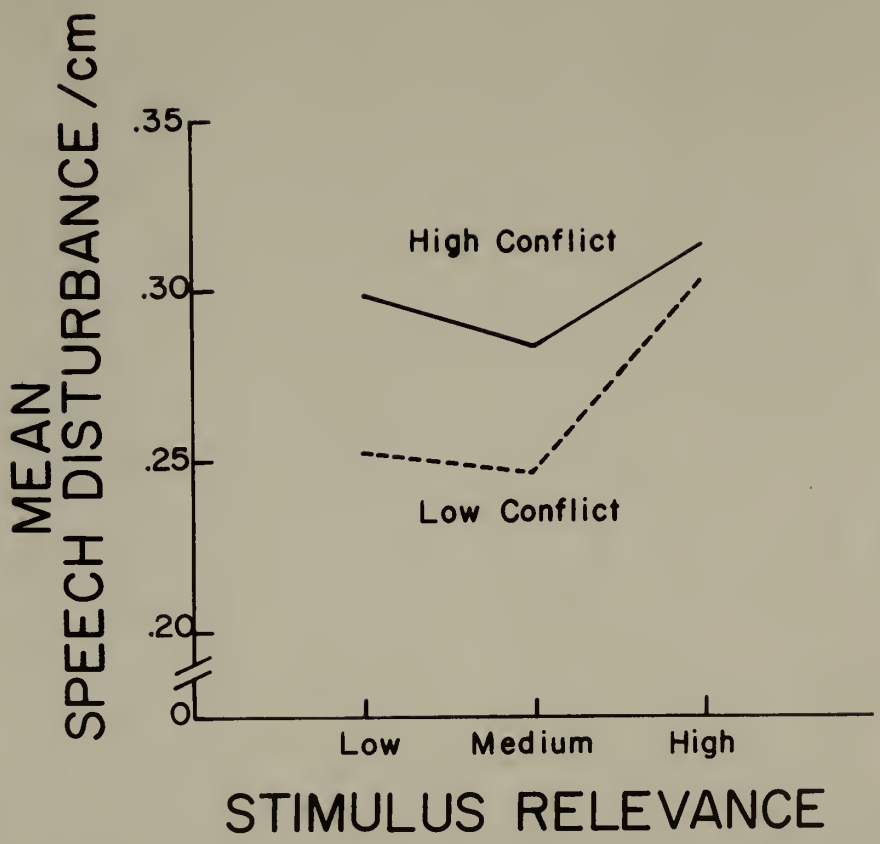


Fig. 7. Mean speech disturbance over time for pictures of low, medium, and high hostility-relevance as a function of conflict associated with hostility.

Table 13

Analysis of Variance of Speech Disturbance as a Function of Conflict and Stimuli of Low, Medium and High Relevance for Hostility

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F
Total	125	3.48	0.03	
Between Ss	41	1.92	0.05	
Conflict	1	0.03	0.03	0.60
Ss/Conflict[a]	40	1.89	0.05	
Within Ss	84	1.56	0.02	
Cards	2	0.04	0.02	1.00
Cards x Conflict	2	0.01	0.01	0.50
Ss x Cards/Conflict[b]	80	1.49	0.02	

[a]Error term for Between.
[b]Error term for Within.

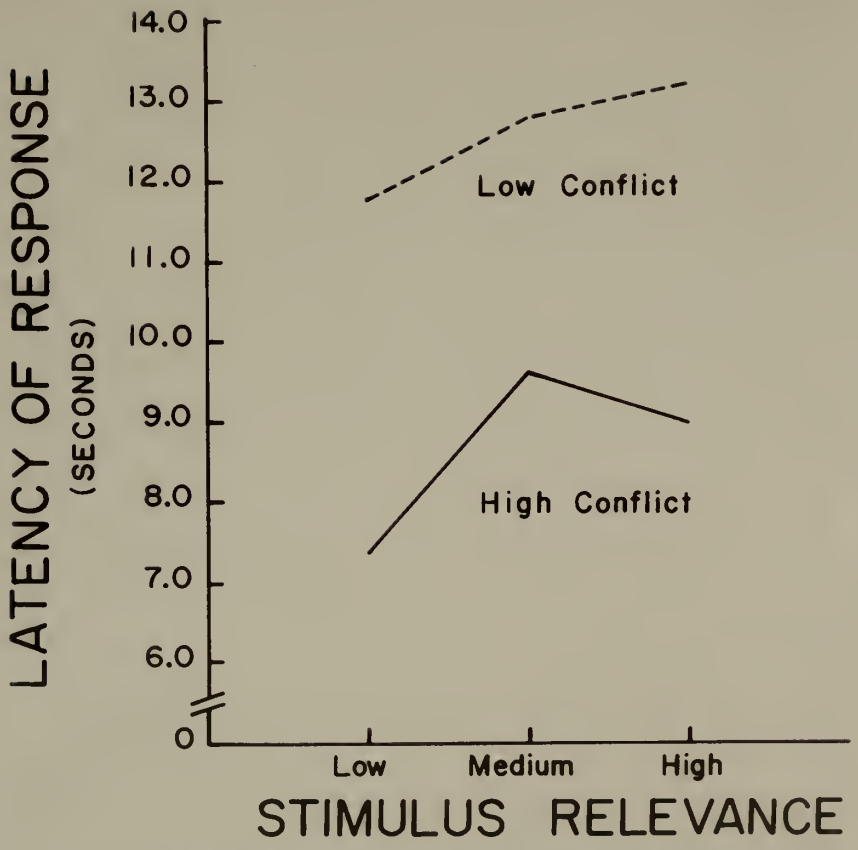


Fig. 8. Mean seconds of latency of response for pictures of low, medium, and high hostility-relevance as a function of conflict associated with hostility.

Table 14

Analysis of Variance of Latency as a Function of Conflict and Stimuli of Low, Medium, and High Relevance for Hostility

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F
Total	137	3611.16	26.36	
Between Ss	45	2571.90	57.15	
Conflict	1	134.23	134.23	2.42
Ss/Conflict[a]	44	2437.67	55.40	
Within Ss	92	1039.26	11.30	
Cards	2	20.32	10.16	0.88
Cards x Conflict	2	2.36	1.18	0.10
Ss x Cards/Conflict[b]	88	1016.58	11.55	

[a]Error term for Between.
[b]Error term for Within.

For the extreme low-conflict group, means for the low, medium, and high cards were 8.8, 10.2, and 12.2, respectively. For the high-conflict extreme, these means were 5.0, 7.8, and 5.4. While these means for the extreme groups were lower than for the total group, the relationship between the high and low-conflict groups was essentially the same for the extreme group as for the total group.

Discussion

For the projective expression of hostility, the results failed to support the hypothesis of a flatter gradient of expression for high-conflict subjects relative to low-conflict subjects in response to all three pictures. However, there was a slight tendency to favor this hypothesis on low to medium stimulus relevance, and this raises the question of the adequacy of the high picture in eliciting hostile expression. The low and medium pictures involved some ambiguity but the high picture was very "structured", providing a "made-to-order" war scene for hostility expression. Thus, the low and medium pictures allowed the subject to bring in hostility in any form he liked. The high card involved specific kinds of socialized hostility and tapped attitudes toward war, apart from personal hostility. Also, as indicated by its relatively low standard deviation, the high card elicited stereotyped responses and was thus a poor item in its psychometric aspect. As a result, it may generally be stated that although three distinct, progressive levels of hostility were tapped by the low, medium, and high cards, the kind of hostility tapped by the three pictures in relation to inner psychodynamics is another question. Lesser (1961) has concluded that the total situation depicted in the card must be held constant in building dimensions. Further, it was possible that even with a response which was relevant to the stimulus, the nature of the thematic stimulus may have been such that expressing such a response involved relatively little "tension".

It was found that displacement of hostility on the medium picture occurred significantly more frequently for the high-conflict group than for the low-conflict group. The medium picture can be considered a moderately high stimulus in that it elicited hostility responses from 88% of the pooled subjects. Thus, displacement of hostility as well as absence of hostility in response to a

stimulus that normally elicits it, may be seen as indicative of avoidance. This conclusion has additional support from similar findings by Saltz and Epstein (1961) and Leiman (1959, 1961).

In conclusion, with regard to the projective expression of hostility in relation to conflict, it is important that pictures be similar in qualitative aspects if they are to be used in a stimulus dimension. Also, the nature of the score is important, since it was found that displacement was a better measure of avoidance than weak responses. Further, the results support finding by Saltz and Epstein and Leiman that conflict is indicated by avoidance of the drive-relevant stimulus.

When the hypothesis about the relative steepness of gradients was tested, analysis of scores on Perceptual GSR was found to be promising but not significant. This analysis was conducted on a small sample, since only 12 subjects in each group produced a Perceptual GSR. Thus, there are implications for further work with this response, possibly with the production of a Perceptual GSR as a criterion for selection of the subjects.

In considering all positive gradients for the Perceptual GSR from the low to the high card in each group, it was found that their more frequent incidence in the high-conflict group approached significance. When inverted v-shaped gradients were combined with monotonic and other gradients presumed to be associated with conflict, it was found that subjects of high conflict obtained a significantly greater incidence of these gradients than subjects of low self-reported conflict. Finally, hostility-conflict scores for subjects with gradients presumed to represent conflict were compared with scores for those subjects with gradients presumed not to be associated with conflict. The group producing combined curves presumed to be indicative of conflict obtained a larger mean and

variance on hostility-conflict scores. The differences between means and variances for the two groups approached significance.

The above findings provide a great deal of support for the contention that more than one "kind" of conflict was operating in this study. More specifically, in conjunction with findings in other studies, the results indicate the importance of attending to two kinds of curves that are associated with conflict: positive monotonic curves and inverted v-shaped curves. Epstein and Fenz (1961) reported two types of GSR gradient--positive, and inverted v--with novice and experienced parachutists. Nelson (1961) also found these two gradients to be more frequent in his group with conflict over hostility. In the present study, there was also a tendency toward greater variability in the conflict scores for the group which produced gradients presumed to be associated with conflict than for the group with gradients which were not presumed to be associated with conflict. Scrutiny of the items in the hostility-conflict scale revealed that there appeared to be two general "types" of conflict involved in the different items--conflict in relation to socially-acceptable and non-acceptable hostility.

On the Response GSR, there was a significant increase from low to medium pictures for the low-conflict group relative to the high-conflict group. This finding was unanticipated and requires verification. However, it may be speculated that in view of the fact that these results occurred with measures taken after the initial perceptual impact of the stimulus, some characteristic type of defense takes place with conflict, in which autonomic reactivity increases with increasing stimulus-relevance for low conflict subjects and remains fairly constant for high conflict subjects.

The speech disturbance measure failed to yield significant results. This was disappointing in view of the hope of eventually replacing direct measure of

autonomic responsivity with more simple approaches to the measurement of conflict. The advantage of a speech disturbance measure is that scoring can be done from the same recording as is used for the scoring of content, and it has been found to be a fairly reliable measure. However, other studies using speech disturbance have dealt with spontaneous speech, as in psychotherapy sessions. In this study, speech was limited to telling a story, in a single session.

There were some interesting findings in relation to the effect of the specific experimental conditions on the results obtained. The card which served as the low card in this study (card 3) had been used by Saltz and Epstein (1961) and Dill (1961) in group situations with a similar population. The per cent of hostility responses to this card obtained by these researchers was 40% and 35%, respectively. Fenz and Epstein (1961) used the same card, and in a testing situation similar to the one in this study (i.e., individual testing sessions with GSR electrodes attached and microphone for the tape recorder). The per cent of hostility responses on this card in Fenz and Epstein's study for a similar population to the present study was 6%, as compared to 8% in the present study. Thus, there is quite clear evidence to the effect that being tested individually, giving vocal responses that fall on listening ears, being taped to electrodes connected to a recording device, being recorded on tape with the microphone in full view--all of these factors may conspire to inhibit the expression of the conflict-related theme.

The inhibitory effect of the experimental situation with thematic stimuli was further demonstrated by Strizver (1961) in a TAT-type study of sex drive with male undergraduates. There were two experimental conditions in the testing situation: Minimum inhibition, with a male experimenter who attempted to

establish an informal, permissive atmosphere; and maximum inhibition, with a female experimenter who attempted to establish a formal, authoritarian atmosphere. There were pronounced inhibitory effects found with the maximum-inhibition conditions. The effects of inhibition in the present study may have served not only to restrict the content of the response, but also to raise tension to a level which interfered with the non-content measures. More specifically, the speech disturbance measure, latency of response and GSR may have failed due to uniform arousal of tension in both groups by the nature of the experimental situation. This may be especially true with the "chronic" type of conflict which exists in relation to hostility. While Fenz and Epstein did achieve highly reliable results with parachutists, their experimental condition involved an "acute", situational type of conflict. More refined procedures are probably necessary for chronic conflict. Probably a good approach would be a series of sessions, allowing for habituation, and culminating with the experimental session.

With respect to the speech disturbance measure, there are some additional considerations: In order to be adequately utilized as a measure of deficit related to conflict, speech disturbance should be tried in a situation more comparable to that of other studies. Also, there should be separate analyses of the individual categories, since it is possible that one or more types of speech disturbance are more predictive than the entire group.

The possibility always exists that groups selected for this study were not "extreme" enough to allow for an adequate test of the conflict hypothesis. With this in mind, a comparison was made of self-reported conflict scores in this study with those in the studies of Dill (1961) and Saltz and Epstein (1961) which used the same scale. For a low-conflict group of comparable subjects, Saltz and Epstein had a range of 11 to 16 and a mean of 14. This is practically

identical with the values in the present study. Dill's low-conflict subjects ranged from 8 to 18 with a mean of 15, which is also comparable to the present study. For their high-conflict group, Salts and Epstein had a range of 23 to 31 with a mean of 26, and Dill had a range of 21 to 28 with a mean of 23. In the present study, the range for the high-conflict group was 20 to 27, with a mean of 21.8. Thus, the high-conflict group in the present study was not as extreme as in the other studies. In an effort to compensate for this, records of seven subjects falling at the extreme upper and lower ends of the range were selected out and compared on responses. Of interest here were the wide discrepancies which occurred for these subjects, particularly on the Perceptual GSR. For the Perceptual GSR, the means for the extreme groups across the stimuli assumed the inverted v-shaped gradients, in almost complete opposition to the curves obtained with the total groups. Some other less dramatic differences between curves for the total groups and extreme groups were: (a) for the Response GSR, a reversal of the low-conflict group from an inverted v-shaped curve for the total group to a v-shaped curve for the extreme group; (b) with speech disturbance, for high-conflict subjects, the extreme group produced a v-shaped curve while the original, total group produced almost a flat line.

It is thus readily seen that with more extreme conflict groups, markedly different scores across the stimulus dimension might have been obtained for the different measures, particularly with the Perceptual GSR.

In inspecting the means on the low and medium cards for the different variables on a qualitative basis, it was found that three variables fulfilled the hypothesis with respect to relative steepness: the projective expression of hostility, the Perceptual GSR, and latency of response.

Summary

The purpose of the present study was to investigate the relationship between conflict associated with hostility and the projective expression of hostility, GSR, speech disturbance, and latency of response.

It was hypothesized that high-conflict subjects would produce a flatter gradient of thematic hostility and steeper gradients of GSR, speech disturbance, and latency of response to the stimulus dimension than low-conflict subjects.

Questionnaires were administered to 85 male undergraduates at the University of Massachusetts. From scales within the questionnaire, scores for conflict associated with hostility and defensiveness were assigned, and 23 subjects from each end of the range of hostility conflict, who were not overly defensive, were tested. The subjects were asked to tell a story to a series of seven thematic pictures which included stimuli of low, medium, and high relevance for hostility. Tape recordings and oscillographic recordings were made. From the former, scores of thematic hostility and speech disturbance were obtained, from the latter, measures of GSR and latency of response were derived.

For thematic hostility, there were no significant differences between the groups on the three levels of stimulus-relevance, although the results were in the hypothesized direction from low to medium stimulus-relevance. The validity of the high-hostility picture as a measure of conflict was questioned because of the stereotyped responses which it elicited, and because of its highly structured situational aspects. In scoring for displacement, it was found that on the medium-hostility card (which could be considered moderately high), the high-conflict subjects more frequently than the low-conflict subjects either failed to express hostility or displaced the hostility when it was expressed. It was concluded that pictures in a stimulus-dimension should be of similar background setting,

and that displacement as well as magnitude of response should be scored. The results on displacement of hostility supported findings of others that conflict is indicated by avoidance responses.

On the GSR, the "initial impact" or Perceptual GSR was promising but not significant when group scores were compared by analysis of variance. However, from the low to the high card, there were more positive gradients in the high-conflict group than the low-conflict group, a finding which approached significance. When all types of gradients over the three cards were considered, gradients which were presumed by other investigators to be associated with conflict were found significantly more frequently in the high-conflict group. Also, the conflict-gradient group was found to have a higher mean and greater variability in hostility-conflict scores, approaching significance. These findings were based on a small number of subjects in each group (12), and should be replicated, although they are supported by results from other studies.

On the Response GSR (following the Perceptual interval), there was a significantly greater increase from the low to the medium card for the low-conflict than the high-conflict group. This was an unexpected finding and is in need of verification.

No significant results were obtained for speech disturbance or latency of response. In addition to the questionable comparability of the high card in the stimulus dimension, two other factors may have contributed to the sparsity of predicted results. One is the possibility of a general inhibitory effect of testing with a tape recorder and GSR apparatus. The other is that an insufficient range of conflict was sampled.

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Appendix A-1

Saltz-Epstein Questionnaire

The following are some statements on feelings, daydreams, attitudes, and behavior. Read each statement and decide to what extent it applies to you. Score "1" if the statement is definitely false as applies to you; "4", if it is definitely true. A rating of "2" will indicate that the statement is mainly false; a rating of "3", that it is mainly true.

Definitely False	Mostly False	Mostly True	Definitely True
1	2	3	4

Be honest, but do not spend too much time over any one statement. As a rule, first impressions are as accurate as any.

Any questions?

1. Once in a while I put off until tomorrow what I ought to do today. ____
2. I am usually calm and not easily upset. ____
3. I feel that might makes right. ____
4. Once in a while I think of things too bad to talk about. ____
5. Life is often a strain for me. ____
6. I notice my hand shakes when I try to do something. ____
7. I have daydreams that I make a fool of someone who knows more than I do. ____
8. I work under a great deal of strain. ____
9. I think it is wrong to seak revenge since two wrongs don't make a right. ____
10. I am no more nervous than most other people. ____
11. I have daydreams about hurting someone I don't like ____
12. I would rather win than lose in a game. ____
13. I wish I could find a way to handle my angry feelings more satisfactorily. ____
14. If I could get into a movie without paying and be sure I was not seen, I would probably do it. ____
15. It is foolish to be nice to those who are inconsiderate. ____
16. I try not to let things upset me because I have such a terrible temper. ____
17. When embarrassed I often break out in a sweat which is very annoying. ____
18. My table manners are not quite as good at home as when I am out in company. ____
19. I have a great deal of stomach trouble. ____
20. When I express my anger, I am usually sorry afterwards. ____
21. I blush no more than others. ____
22. I feel there are situations where one is justified in hurting another person's feelings. ____

23. I sweat very easily even on cool days. ____

24. I believe that aggressive feelings should be expressed. ____

25. I am a very nervous person. ____

26. I can never condone physical violence. ____

27. I wonder why I act so nice to people I can't stand. ____

28. I do not read every editorial in the newspaper every day. ____

29. I never get so mad as to feel like beating or smashing things ____

30. When someone annoys me, my first impulse is to tell him (her) off. ____

31. I feel anxious about something or someone almost all of the time. ____

32. I feel sorry after telling someone off, even though he (she) may have deserved it. ____

33. I have very few headaches. ____

34. At times I feel like swearing. ____

35. I fail to defend myself when I should, and I get overly aggressive when I shouldn't. ____

36. At times I feel that I am going to crack up. ____

37. I am not easily angered. ____

38. Sometimes when I am not feeling well, I am cross. ____

39. I find it hard to refuse favors even to people I dislike. ____

40. I do not often notice my heart pounding and I am seldom short of breath. ____

41. I picture myself taking revenge on someone I dislike. ____

42. I have been afraid of things or people that I know could not hurt me. ____

43. I feel that people are too much concerned with satisfying their own desires at the expense of others. ____

44. I do not tire quickly. ____

45. I think of ways to get even with certain people. ____

46. I have nightmares every few nights. ____

47. We are never really justified in being hostile toward others. ____

48. My sleep is restless and disturbed. ____

49. Some of the destructive thoughts I have really frighten me. ____

50. I do not always tell the truth. ____

51. I get angry sometimes. ____

52. I have diarrhea once a month or more. ____

53. I do not have unusually strong hostile feelings and impulses. ____

54. I do not have as many fears as my friends. ____

Appendix A-2

Lie Scale Items

1. Once in a while I put off until tomorrow what I ought to do today.
4. Once in a while I think of things too bad to talk about.
12. I would rather win than lose in a game.
14. If I could get into a movie without paying and be sure I was not seen, I would probably do it.
18. My table manners are not quite as good at home as when I am out in company.
28. I do not read every editorial in the newspaper every day.
34. At times I feel like swearing.
38. Sometimes when I am not feeling well, I am cross.
50. I do not always tell the truth.
51. I get angry sometimes.

Note.--Numbers refer to position of item in the questionnaire.

Appendix B

Thematic Picture Stimuli

Card 1

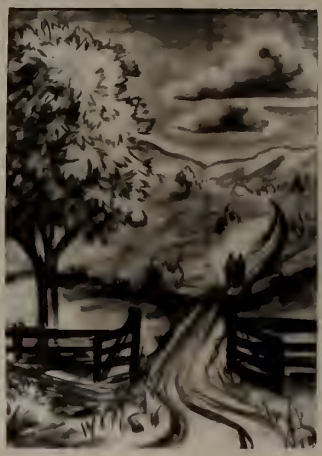
Card 2

Card 3 (low)

Card 4

Appendix B (continued)

Card 5 (medium)



Card 6

Card 7 (high)

Appendix C-1

Representative Stories for the Three Categories of the Low Card

1. (1)

Person's walking into an office for an interview for a job, and he seems enthused about it; and he should give a good impression because of the way he's dressed; probably turn out well--the interview will probably turn out very good, I guess.

This boy is going into a classroom and he looks as though he's--well--enjoying himself; probably some course he likes or likes the instructor; and he'll probably think the lecture is very interesting and naturally he'll get interested in the subject--and possibly enjoy studying about it.

2. (2)

He just probably either graduated from high school or college and is just talked to an employer--looking for a job. He seems to be pretty determined and he doesn't know if he has a job or not yet, but by the way he looks, I think he'll probably get it--and--he doesn't seem nervous or anything; he'll get the job and do well--fairly well in the business.

This man has been working at a company for about 10 years; finally he's got enough courage to walk in and ask the boss for a raise; made up his mind to walk in with determination and come out with money; probably won't get it.

3. (5)

He looks like he's having a fight with somebody--with his wife or his girl, and he's leaving for awhile and cool down. Eventually, he'll think it out and solve it, one way or the other.

Another angry young man, walking out of wherever he had the fight--whoever he had it with--possibly his wife, since he seems to be an older person, and dressed up--business man--probably a violent temper, flares up, has big fight verbally. I would say no violent action. He's walking out now; he'll go out, walk around, cool off, come home and try and resolve it--whatever the problem was, whoever he had the fight with; but at the moment, he's very angry; at least it looks that way.

Note.--Numbers followed by periods refer to categories for each card.
Numbers in parentheses refer to final scale values.

Appendix C-2

Representative Stories for the Five Categories of the Medium Card

1. (1)

It looks like someone practicing for drill; looks like probably someone's drilling or just going back and forth; he doesn't seem happy or sad--just seems to be doing it by--routinely; seems quite indifferent to him; looks like he's doing all right, though.

He's walking along a corridor. It looks like he's in sort of a haste the way he has his arms swinging back and forth, there; probably going to a class he's late for, or some kind of an engagement.

2. (3)

That takes place in a school or a corridor of a school, and the boy is anxious over his girl friend--had a little friction with her and he's trying to straighten it out and he's walking toward her--or toward the place where she is now, and he's very worried as to what the outcome will be; and she naturally is waiting for him, also with the same worries or thoughts, and they'll probably straighten it out in no time.

This scene takes place in school, and this boy has been fooling around all year long, but nothing serious enough to get in trouble for; and finally, in class one day, the boy next to him did something, and the teacher thought he did it, and sent him on his way to the Dean's office; and he's on his way to the Dean's office with a story cooked up in his mind, to tell him the truth--you know--what's been happening--he's been unjustly treated and he wants fairness and everything like that; and he gets out of it all right.

3. (4)

Well, this looks like a rather angry young man; looks like he's just gotten into some situation where he hasn't gotten on too well, or he's going something where he's mad; going to meet somebody he's mad at--or he's mad at something--and--I think he could find a better way than using his temper to get things straightened out.

Another angry young man--at least I would say so. He's walking around with a fist; walking very straight; has a stern face, lips are turned down, so probably he's mad at somebody. He's walking away; could even be a continuation of the other one (previous card) except he's dressed different. Well, maybe he's a--somebody just coming out of class after flunking an exam or doing poorly on an exam, and he's determined, very determined on what he's going to do; could be a student--he's dressed some as a student would be dressed like; very determined to better himself--try to better the conditions, the exam, the mark. Whether he does or not, I don't know, but he's going to try, anyway. He's walking away from it now.

Appendix C-2 (continued)

4. (6)

Oh, God--he looks angry; probably just got told off--(laughs) and he's going away mad; that's the way he looks to me. I'd hate to be the person he meets afterward--probably bite their head off. Well, it's like he--somebody told him off or--he got mad, and he's in a depressed state of mind so if anyone meets him--God help them (laughs).

As soon as I look at this boy's face, I interpret it as revenge--also, the clenched fist; he looks like he is very much determined to physically take out his feelings on something or someone, probably someone; nothing else; possibly it's a school; I see a faint trace of possibly a typical tile floor, but--and a bare hallway and--appears like a hallway.

5. (6)

Here's a boy who's having trouble at a dance with his girlfriend and it seems these other fellows are warning him to stay away from her, but he wants her for himself. After a heated argument inside he agreed to get outside and settle the matter outside once and for all--just the two of 'em. I'm afraid he bit off a little more than he can chew this time--he's not thinking straight but he just goes in there wild instead of fighting normally, thinking things out; and he loses this fight.

Looks like a gorilla or something to that effect. This guy wants to start a fight with some kid that has just said something that he didn't like; not directly to him, but he heard about it somehow, through usual channels, and he's going to punch this kid out, so to speak--and--this is the town bully, anyway. He goes up to this--the kid that said this derogatory thing about his girl--he's one of the smaller kids in the neighborhood; he didn't mean anything by it; but Bill here won't hear anything of this sort; he just wants to have a little fun on his own and keep up his rep. So, he goes down to see--walking down the street now and he sees this kid on a corner and he goes down. The kid is with about three of his friends, but they don't seem to want to help him any--and they're all afraid of Bill--probably they're afraid he can take 'em all at once, anyway; so Bill starts banging the kid around a little bit, and the kid won't fight back, and his friends don't seem to want to help him or anything; and then finally one of his friends goes in and gets a cop in one of the drugstores around; but the cop comes up and tries to break 'em up but Bill gives him a rough time, and the cop threatens to take him down the station, but Bill won't hear anything of the kind--he just wants to have a little fun; he says he's not going to hurt anybody, and this kid said something about his girl and he was going to get even. The cop tries to convince him for a while; he doesn't seem to do too well, but finally he gets rid of him and he tells the rest of the kids to go home.

Note.--Numbers followed by periods refer to categories for each card.
Numbers in parentheses refer to final scale values.

Appendix C-3

Representative Stories for the Five Categories of the High Card

1. (7)

Two people fighting each other; looks like they're in the war; looks like the American there knocked down the German there--stabbed him; but I think the American's going to get a change of heart because he's letting him get up.

Well, this must be a World War I scene. Looks like a German has just been wounded and a--probably this was just an isolated incident in the war; the two probably met by chance; the one with the knife is an American, I suppose, and they fought it out together, and the American won, but he must have some sense of respect for this wounded man because he isn't--doesn't--seem about to kill him. He seems to me that he's defeated him, and that's all that matters for the time being. If he were in the presence of his allies, he would probably have killed the man, but he feels compassion for him now. He knows he can't do him any harm, and this war is probably--seems very ridiculous to him--fought over trivial matters, and they were both dragged into it from each side, and it's an unfortunate circumstance for the both of them.

2. (7)

Well, this picture somewhat illustrates how one boy is wounded another which is another enemy; in this case, a German boy. It doesn't seem like it would really be a Korean war or anything; looks like it may be fake or have some significance in that way--I don't know.

Looks like it's during war, but they look like children, though it must be a war situation because of the barbed wire and everything; and--guess the one with the knife is an American, and stabbed the German soldier. The outcome is that this American finally helps the wounded German, 'cause he's not yet dead. They end up being friends, I guess--I don't know what could happen to them; finally leaves; doesn't take him to a prison camp or anything; doesn't look like a real war to me--looks like kids playing.

3. (8)

These men probably knew that each other was in the area, but didn't know where or what weapons each other had. The German is wounded and will die; but the killer doesn't seem like he wanted to kill but he had to because it was his duty--patriotic duty.

This is a picture of two people fighting in the war, and the one man has just stabbed the other one with a knife; and while the man might not feel bad about the deed at the time, he may realize later that what he did may be morally

Appendix C-3 (continued)

3. (8) (cont.)

wrong within himself; but by the standards set up by his country and the fighting for his ideals, that actually he really didn't do anything wrong because the other man was just as set in his ways and opinions as the man who was doing the stabbing was.

4. (8)

This is a scene of violences. It's noted here it's in the war. The German one is wounded--he's practically--he is dying; and you see blood represents the violence and that he is in pain, and he is dying; and the man with the knife just seems to be waiting what effect his blow has had on the person.

Well this is obviously a war scene; some--maybe one of the allied troops against one of the axis troops; 'sother guy with a German hat on; although the man on the left doesn't seem to be very well equipped for battle combat; he hasn't anything but a knife; and it looks like he got the other guy right in the stomach. He's just looking over while the other guy's gasping his last breath.

5. (9)

A Frenchman: He's just stabbed a Nazi soldier; during the second world war, of course. The--this man who did the stabbing was probably an underground agent--he's not wearing a uniform; he was--he's trying to get inside this barrier of concertina wire; this guard evidently approached him and he was forced to stab him. He--the way he's clutching his dagger, or what have you, I would judge that he's not particularly sorry about this thing. In fact, it didn't even faze him; he seems to be enjoying watching this man die; seems to be saying 'All for the cause of France!'

This--is--action takes place in world war; there's shells bursting all around, in the midst of a battlefield; here's a--looks like an allied soldier; he just stabbed a German, by the looks of the helmet on the ground and bayonet in his hand; could just be revenge of one soldier against another, though--that--the man is still standing there, waiting for him to die instead of moving up away. He seems to enjoy, glory, in the fact he's just killed this man; or, he's stabbed the man and he's in the process of dying; seems quite stubborn--just going to stand there until the man does die to make--just for positive proof that he is dead.

Note.--Numbers followed by periods refer to categories for each card.
Numbers in parentheses refer to final scale values.

Legend for Appendix D

S: Subject's number.

Q Def: Score on the defensiveness scale.

Q H-Confl: Score on the hostility conflict scale.

Them Host: Score for expression of hostility on the low, medium, and high cards.

Pcpt'l GSR: Maximum GSR occurring during the Perceptual Interval for the low, medium, and high cards.

Resp GSR: Maximum GSR occurring during the Response Interval for the low, medium, and high cards.

Speech Dist: Number of speech disturbances per centimeter (2 seconds) for the low, medium, and high cards.

Latency: Latency of verbal response in centimeters (2 seconds/cm.).

Appendix D-1

Table of Values of Relevant Variables for the Low-Conflict Group

S	Q Def	Q H-Confl	Them Host			Pcpt'l GSR			Resp GSR			Speech Dist			Latency		
			L	M	H	L	M	H[a]	L	M	H	L	M	H	L	M	H
1	26	15	2	6	9	—	—	—	—	—	—	.19	.13	.24	2.7	5.0	10.4
4	36	16	1	3	9	.20	.10	—	—	.46	.15	.41	.36	.30	8.4	10.0	13.5
5	37	15	2	4	9	.41	—	—	.68	.52	.25	.58	.49	.42	3.7	5.6	3.9
7	35	15	1	1	9	—	—	—	—	—	—	.21	.07	.23	5.2	3.1	2.9
8	30	14	2	4	8[a]	—	—	—	—	—	—	.39	.35	.37[a]	14.3	17.4	26.1
14	24	13	2	3	9	—	—	—	1.48	.75	.84	.39	.44	.46	1.8	1.4	2.5
16	32	16	1	6	8	1.55	—	1.73	.74	1.06	1.14	.19	.08	.52	4.7	2.4	4.3
18	28	13	1	4	8	—	—	—	—	.25	.04	.37	.24	.37	2.5	2.3	2.7
19	32	15	1	3	8	—	.21	.21	1.75	1.98	1.84	.28	.24	.54	2.1	1.7	1.2
20	20	13	2	3	8	—	.96	—	1.80	1.25	1.16	.08	.17	.12	4.3	6.2	6.7
21	23	13	1	4	8	—	—	—	.11	.04	.09	.35	.13	.22	3.6	1.3	2.2
22	35	16	5	6	7	—	—	—	.33	.60	.50	.33	—	.41	1.7	1.1	5.4
23	28	13	1	4	8	.57	.25	.30	1.36	1.20	2.09	.08	.10	.22	2.1	2.5	2.3

Appendix D-1

Table of Values of Relevant Variables for the Low-Conflict Group (continued)

S	Q Def	Q H-Confl	Them Host			Pcpt'l GSR			Resp GSR			Speech Dist			Latency		
			L	M	H	L	M	H[a]	L	M	H	L	M	H	L	M	H
29	32	16	2	3	8	—	—	—	2.76	4.29	3.03	.12	.61	—	6.4	10.1	9.6
30	33	16	2	6	7	.54	.28	.18	1.81	2.80	.56	.39	.27	.15	12.1	1.6	3.5
31	34	11	2	6	8	—	—	.63	1.38	3.20	1.87	.17	.25	.47	7.7	7.2	9.4
32	30	12	1	4	7	.47	1.36	1.38	1.45	.79	1.95	.27	.32	.58	5.4	3.6	4.2
35	35	12	1	6	8	—	—	—	—	—	1.52[a]	.22	.60	.48	7.5	12.0	13.0
40	31	14	1	6	7	—	—	—	.18	.08	.17	.32	.23	.28	6.2	3.2	2.5
41	31	13	2	4	7	—	.60	.53	2.65	1.20	2.46	.21	.10	.20	4.0	5.4	6.6
42	31	16	2	6	7	—	—	—	—	—	—	.09	.33	.09	1.9	1.4	2.1
43	30	16	—	—	—	.25	—	—	.86	3.16	.84	—	—	—	18.1	38.3	13.4
45	37	16	5	3	8	.71	.22	.41	.66	2.35	2.00	.06	.05	.06	2.5	5.2	3.9

Note.—See definitions of columns in legend at beginning of Appendix D.
Dashes represent no response obtained.
[a]Omitted from analyses.

Appendix D-2

Table of Values of Relevant Variables for the High-Conflict Group

S	Q Def	Q H-Confl	Them Host			Pcpt'l GSR			Resp GSR			Speech Dist			Latency		
			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
2	22	22	—	—	—	—	—	—	—	—	—	—	—	—	1.9	2.5	3.7
3	33	20	—	—	—	—	—	.30	.92	.95	2.88	—	—	—	6.4	3.0	3.0
6	28	20	2	3	8	—	—	—	.11	.74	.84	.40	.20	.52	6.1	5.4	5.7
9	24	20	1	6	8	—	—	—	—	—	—	.38	.88	.52	7.5	6.0	11.3
10	32	22	2	3	8	—	—	—	—	—	—	.08	.12	.08	3.5	17.3	10.4
11	27	21	1	6	8	—	—	—	—	—	—	.56	.36	.31	4.5	0.7	4.8
12	30	23	1	4	7	—	—	—	—	—	—	.32	.21	.22	2.9	1.7	2.3
13	33	23	1	1	7	—	—	—	.17	.18	—	.29	.33	.27	3.8	4.0	5.3
15	33	20	1	1	8	—	—	.30	2.00	1.80	2.70	.29	.20	.40	3.1	4.0	11.9
17	27	20	2	6	9	.16	.53	2.09	.52	.49	.67	.07	.20	.19	2.7	3.1	3.2
23	30	23	2	3	8	—	—	—	1.39	.19	.75	.20	.16	.27	1.2	2.3	2.1
24	25	21	5	4	8	—	.29	—	1.62	3.49	3.23	.16	.19	.28	2.3	1.7	4.0
25	24	22	1	1	8	—	.86	.56	2.28	3.06	1.04	—	—	.05	2.2	3.5	2.8

Appendix D-2

Table of Values of Relevant Variables for the High-Conflict Group (continued)

S	Q Def	Q H-Confl	Them Host			Pcpt'l GSR			Resp GSR			Speech Dist			Latency		
			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
26	37	22	2	6	8	1.22	--	--	7.57	5.88	4.42	--	.16	.20	3.7	10.6	2.7
27	22	20	1	4	8	--	--	--	1.24	1.12	1.62	.39	.11	.33	1.8	3.3	2.4
33	28	21	1	3	8	--	--	.68	1.48	3.69	.81	.39	.24	.31	2.0	7.4	3.8
34	35	23	5	4	8	.15	.53	--	2.85	2.66	3.27	.29	.48	.42	2.6	3.0	2.8
36	32	22	1	3	8	--	--	--	.64	.26	.39	.15	.70	.46	3.0	3.2	2.1
37	35	21	2	3	8	--	--	.21	.32	--	.05	.54	.38	.37	12.6	9.8	11.3
38	37	23	2	6	8	--	--	.20	.63	1.61	.94	.48	.11	.48	1.5	2.1	2.9
39	32	20	2	6	8	--	.37	.44	3.52	.53	.79	.52	.24	.26	4.0	2.3	2.4
44	31	27	2	1	8	.27	.30	.29	.81	.42	.76	.18	.29	.33	2.2	12.6	3.0
46	28	25	5	6	9	--	--	--	.60	.85	.29	.62	.40	.32	3.0	1.4	0.7

Note.--See definitions of columns in legend at beginning of Appendix D.
Dashes represent no response obtained.

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